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US ARMY CORPS
OF ENGINEERS
New England District

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Use of Current and Historic Dredged Material Disposal Sites for Lobster Collection

LONG ISLAND SOUND DREDGED MATERIAL DISPOSAL SITE DESIGNATION ENVIRONMENTAL IMPACT STATEMENT

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Long Island Sound Dredged Material Disposal Site Designation Environmental Impact Statement

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to

U.S. Army Corps of Engineers
North Atlantic Division
New England District
696 Virginia Rd.
Concord, MA 01742-2751

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Battelle
397 Washington Street
Duxbury, MA 02332
(781) 934-0571

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1.0 INTRODUCTION

The New England District of the U.S. Army Corps of Engineers (USACE) contracted Battelle to undertake a survey of American lobster (*Homarus americanus*) harvesting in the central and western regions of Long Island Sound (LIS) for use in the preparation of the Long Island Sound Dredged Material Disposal Site Designation Environmental Impact Statement (EIS). In particular, information on the level of abundance, harvesting locations, and habitat characterization of lobsters was sought for four sites, two existing disposal sites (Western Long Island Sound [WLIS] and Central Long Island Sound [CLIS]) and the two alternative sites (Bridgeport and Milford). The principal intent was to obtain information from lobstermen on their experience working within the vicinity of these four sites.

2.0 APPROACH

Dr. Carlton Hunt and Ms. Lynn McLeod of Battelle coordinated the meetings with Mr. Michael Ludwig of the National Marine Fisheries Service (NMFS). Mr. Ludwig facilitated the meetings with local lobstermen in Bridgeport, Milford, and East Norwalk, CT on August 26 and 27, 2002 (NMFS 2002). Dr. Hunt and Ms. McLeod designed the meetings to discuss the relationships between lobster populations, fishing, and dredged material disposal throughout the central and western regions of LIS. The meetings were informal and not intended to include all fishermen from each area, but did focus on commercial fishermen and their experiences with the *Homarus americanus* population and the fishing practices at each of the four sites. Questions covered at each meeting included:

1. Do you lobster now or have you lobstered on WLIS or CLIS?
2. Does active lobstering occur in or near the alternative sites?
3. How critical are these locations to lobstering?
4. Do lobstermen feel lobstering at former sites is better than in adjacent locations with similar topography?
5. In what areas of the Sound do you lobster?
6. How many others lobster in this area?
7. Where is lobstering most productive in the Sound?
8. How do lobstermen feel about lobstering on the WLIS and CLIS sites?
9. Are there areas of the Sound that you think would be more suitable for dredged material disposal sites?
10. Is shell disease more prevalent in some areas of the Sound than others? If so, where?

At each meeting, Mr. Ludwig gave an introduction of the project, including the overall project and meeting goals, and summarized the type of information Battelle was trying to collect. Dr. Hunt and Ms. McLeod then proceeded to address the questions through discussions with the lobstermen on their experience in each area. The questions were designed to overlap to ensure that comprehensive responses were received from all participants. During the discussion, Battelle staff took notes and asked the lobstermen to mark on nautical charts and seafloor depictions those areas fished, not fished, or those areas that have a high productivity, and the nature of their catch (egg bearing, culls, juveniles, *etc*.).

Upon conclusion of the meetings, Mr. Ludwig suggested Battelle contact Mr. David Simpson of the Connecticut Department of Environmental Protection (CTDEP) for information on the CTDEP Logbook System, which aims to quantify the amount of lobstering taking place in Connecticut waters. Ms. McLeod contacted Mr. Simpson on August 29, 2002 via e-mail and received an Excel file containing data from 1979 to 2001, which is discussed further in Section 3.5 *Lobster Counts in Connecticut Waters* and depicted in Figure 2.

3.0 RESULTS

In general, each lobsterman noted that lobsterpots are located throughout the central and western regions of LIS and that density and specific location may change seasonally. Figure 1 shows a graphic representation of the areas indicated by the participating lobstermen as areas fished. Since the height of the "lobster die off" (1999) several lobstermen have stopped fishing or shifted to other species. However, since population density in given locations depends on the season (*i.e.*, migration patterns of the lobster), lobsterpots continue to be dispersed throughout the harvest areas. One former lobsterman stated that the central and western regions of the Sound on the Connecticut side were more productive than the eastern portion starting at about the Branford area (longitude 72° 49' W).

During the discussions it was noted that lobster trap placement techniques vary between the central and western regions of the Sound. The difference is mainly due to the topographic features and the migratory patterns of the lobsters. In the flat areas of central LIS, trawls (strings of lobster pots) generally run north to south while trawls in the western regions are placed along topographic contours (often in an east/west alignment). Lobstermen in the central portion of LIS (New Haven, Milford, and Bridgeport) generally set their equipment in the same area throughout the year. Thus, lobstermen rely more on the migration of lobsters through the CLIS area from winter areas to summer areas. The migrations typically follow the changes in water temperature at depth in the Sound. In the western portion of the Sound, lobstermen reported their gear is moved to different spots to follow the lobsters' seasonal migration to and from the deep central topographic trough of the western basin.

The lobstermen consistently indicated that the existing dredged material disposal sites are preferred lobstering and finfishing grounds. Their sense is that lobster and many types of fish are attracted to the changes in topography resulting from disposal and possibly due to new food sources (worms and clams) associated with every disposal event. One common concern voiced was the possible contamination of the water, lobsters, or fish that might come in contact with the dredged material. This was addressed by explaining regulations regarding the disposal of dredged materials in open water including the requirement that material pass appropriate bioaccumulation tests defined by the national and regional dredged material testing manuals to be acceptable for disposal.

Another consistent comment throughout the meetings was that there are no areas where shell disease is prevalent. It was noted that catches around CLIS are showing some increase in its appearance (several per day at sea) but the lobstermen did not view this as a problem. Specific comments made regarding each area are listed below.

3.1 Western Long Island Sound

The WLIS site is an actively lobstered area. Lobstermen from Connecticut and New York fish these waters. The "lobster die off" in 1998 that decimated the population had its epicenter in the western basin of LIS. Before the lobster die off, regions of the WLIS site were noted as a very good place to catch lobsters. Catches continue in the area, but at greatly diminished levels. Seasonally, several types of finfish can also be found in these same waters.

Lobster in the western portion of LIS generally migrate between the shallower waters and deeper waters of the area depending on the time of year. Lobster are found in shallow waters from November to March and deeper waters from June through September. The lobstermen also indicated migrations in the western Sound tend to move north/south rather than east/west and the best fishing is in the "holes." WLIS, which

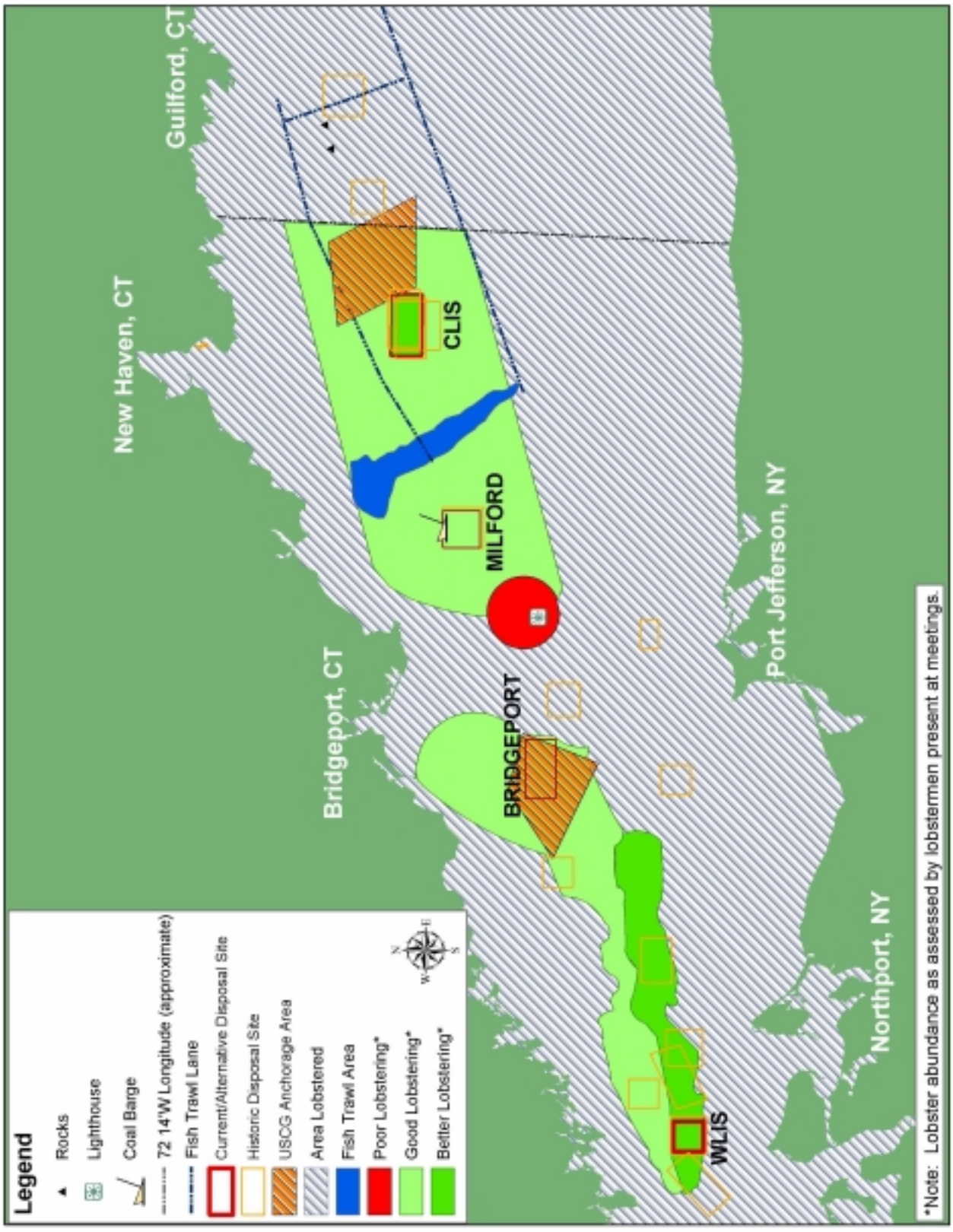

Figure 1. Areas of Western and Central LIS Identified by Connecticut Lobstermen as Poor, Good, and Better Lobstering Areas.

is located in the deeper areas of western LIS is considered a good area to catch lobsters on an intermittent basis. In most instances, the WLIS site, as part of the "western basin" deep results in better catches than shallower areas. It was expressed that this may be due to habitat limitations (*e.g.* loose sand along the Cable and Anchor ridge between Eatons Neck, NY and Long Neck Point, CT.) or areas that have bottom obstructions (*i.e.*, barges, boats, etc) that limit lobsterpot use in those areas. In general, lobsters are found more frequently in the deep trough area and the WLIS disposal site, than the boulder fields or sandy areas where currents are swifter. The deep trough near the east/west axis of the Sound was described as the best area to capture lobster and that WLIS is equivalent to the deep areas. The fishermen interviewed indicated that there is little bottom trawling in western LIS due to harvesting restrictions and bottom obstructions.

In general the lobstermen have no issues with additional material being disposed of at the WLIS location. They felt it was better to keep disposal at the site than to pick a new site in the same area. They specifically stated that the contours in the bottom should not be smoothed as they provide additional habitat for fish and shellfish, and several fishermen even encouraged more contour building (as little as 3-4 feet). The lobstermen did express, however, the concern that dissolved oxygen (D.O.) levels in the area around WLIS might be affected by additional dredged material disposal and any associated biological oxygen demand (BOD). They suggested the disposing of dredged material at Bridgeport might be better because the area does not become as anoxic as the WLIS area and the Bridgeport region is more open to exchange with the rest of the Sound which may decrease any effects the dredged material might have on water quality (*i.e.*, D.O.).

The lobstermen were asked how quickly the lobsters might be attracted to an existing disposal site or return after disposal activities cease. The answer was that it was dependent on the time of year (whether lobsters are migrating through the area) and that the recovery rate of the benthic community influences the long-term return and catch of lobsters. At some times of the year, reoccupation was believed to be immediate.

3.2 Bridgeport

According to the lobstermen, the old Bridgeport disposal site is lobstered year round by members of the Portuguese community (20-25 boats) from Bridgeport, CT and most of the fleet from Fairfield, CT (3 to 4 boats). One lobsterman noted that Dr. Lance Stewart (University of Connecticut Sea Grant) surveyed the bottom sediments of the Bridgeport site during the mid-1970s. He remembered the cameras showing the area as an expanse of bedform (sediment) waves with lobster burrows throughout.

It was noted that lobster productivity in the region off Bridgeport is the best in this part of the Sound and that production within the site is equivalent to the surrounding area. They noted that no dragging occurs in this area. The central axis of the Sound was also noted as being a very productive area in the Sound. Based on Connecticut Department of Agriculture's Aquaculture Division (2002), the Bridgeport site is within 2 nautical miles of leased oyster beds (northeast of the site). Concerns were raised over the transport of dredged material and the effect on water quality at these leased beds due to the new Food and Drug Administration's (FDA) rules on water quality in the area of harvestable shellfish beds. The lobstermen did note that the U.S. Coast Guard has identified[1] a portion of the old Bridgeport disposal site

[1] Battelle contacted the U.S. Coast Guard (USCG) Long Island Sound Marine Safety Office to confirm the location of a lightering area in the vicinity of the Bridgeport site. As shown on Figure 1, two areas in the central portion of Long Island Sound are used for anchorage of vessels for lightering purposes. One area overlaps the entire Bridgeport site while the second covers the northeastern corner of the CLIS site.

as lightering area (an anchorage area for large ships to unload cargo due to the shallow nature of Bridgeport Harbor) and were concerned about possible use conflicts with disposal operations and the lightering activity.

One suggestion made as to a possible better location for dredged material disposal was to place it in a deep hole near the Middle Ground Shoals. The depth of the area (over 100 feet deep), the bottom type ("sediment resembling black ink"), and amount of fouling in the area (renders lobstering difficult) were conveyed as reasons.

3.3 Milford

The Milford site is actively lobstered year round by two to three lobstermen from the Milford area. The lobstermen noted that the area is no more productive than any of the surrounding area, but that a very strong bottom current exists. It appears from the fouling of the traps (freshwater algae and oak leaves) placed around the Milford site that the Housatonic River discharges a fairly large amount of water over the site causing a bottom current that is quite strong. Repeated questioning indicated that over the last several years the three lobstermen who deploy extensive trawls crossing over and around the site did not find the historic site to be either more or less productive than surrounding areas. This group of lobstermen indicated that lobsters prefer fine-grained (soft) sediments while sandy areas generally have poor lobster catch. No difference in lobster catch within or outside of Milford was noted. They felt lobstering was fairly uniform through the region but seasonal differences in production occurs.

During discussions it was noted that there is a capsized coal barge in the northern portion of the site.

3.4 Central Long Island Sound

Several of the lobstermen and fishermen interviewed were familiar with the usage of CLIS for lobstering. In general they noted that lobsterpots are located throughout the CLIS site and the surrounding areas. They noted that CLIS was the place to set lobsterpots in the 1980s (when disposal was active) and was known as the best place in the area. The CLIS site is believed to be less productive now than in the past (which may reflect the overall decline in standing stocks). As shown in Figure 1, there are three fish trawl lanes that are located north, east, and south of the CLIS disposal site. Fishermen reported that this is the only place they can successfully trawl due to the positioning of lobster pots throughout the remainder of the surrounding area including CLIS.

3.5 Lobsterpot Counts in Connecticut Waters

Lobsterpot counts from the Connecticut Department of Environmental Protection Logbook System (Figure 2) show that the number of lobsterpots fished in Connecticut waters gradually increased over a 20-year period to a high of 204,427 (1999). The number of lobsterpots declined following 1999 to 156,003 in 2000 and 156,020 in 2001 (CTDEP 2002).

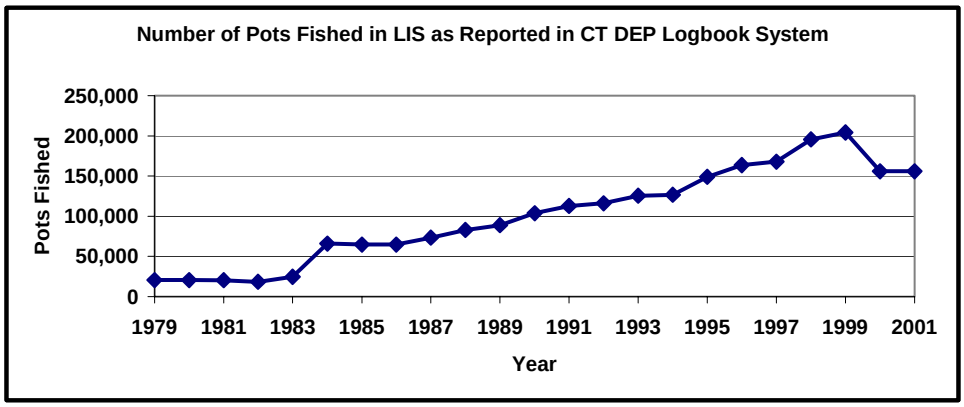

Figure 2. CTDEP Lobster Pot Counts 1979 through 2001.

4.0 CONCLUSIONS

Several general conclusions may be drawn from these conversations. The first is that dredged material disposal within LIS does not appear to have a negative impact on lobstering. Responses to questions indicate that the disposal activity could be considered beneficial to the lobster community. The information from the lobster meetings suggests the lobsters may favor the dredged material for its soft muddy content that sustains burrows (creation of contours on the seafloor which protect lobsters from currents) and possible food sources.

Although the dredged material disposal was generally viewed favorably, concerns were voiced about the type of dredged material disposed of at the sites and of its transport to the site during disposal. Water quality in and around the sites including dissolved oxygen levels and contaminant levels appear to be the largest concern of the lobstermen interviewed. Lobstermen specifically voiced concern that the dredged material being deposited will decrease the dissolved oxygen levels at the WLIS site where it is already hypoxic during some periods of the year. Shellfishermen are also concerned with turbidity and the potential level of contaminants being released into the water column as well as the possible effects both would have on the water quality at nearby shellfishing areas. The only additional concern voiced was on site management (*e.g.*, how will the dredged material be deposited on the site?) and whether notification would be given in advance that would allow the lobstermen to move their gear from an area where disposal will occur. (Several participants of the meetings had intimate knowledge of dredging activities with at least one serving as an independent, disposal observer for the U.S. Army Corps of Engineers.)

Based on the conversations with the lobstermen, it appears as if they would prefer that the sites stay where they are as long as the continued dredged material disposal will not decrease the dissolved oxygen levels at WLIS. If this is expected to occur, they voiced some conflicting preference about alternative disposal sites. The suggested alternative for the Bridgeport site was the hole just west of the Middle Ground Light. In addition it appears that the bottom currents at the Milford site should be reviewed to determine potential effects on the transport of disposed dredged materials.

5.0 REFERENCES

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NMFS. 2002. Personal Communication with Mike Ludwig on August 26 – 27, 2002.